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CROSS REFERENCE EXAMINER
Also in 366/605

Feb. 12, 1952 M. D. McCAULEY 2,585,334

# CLOSURE FOR PAINT CANS

Filed Jan. 19, 1949 2 SHEETS—SHEET 1

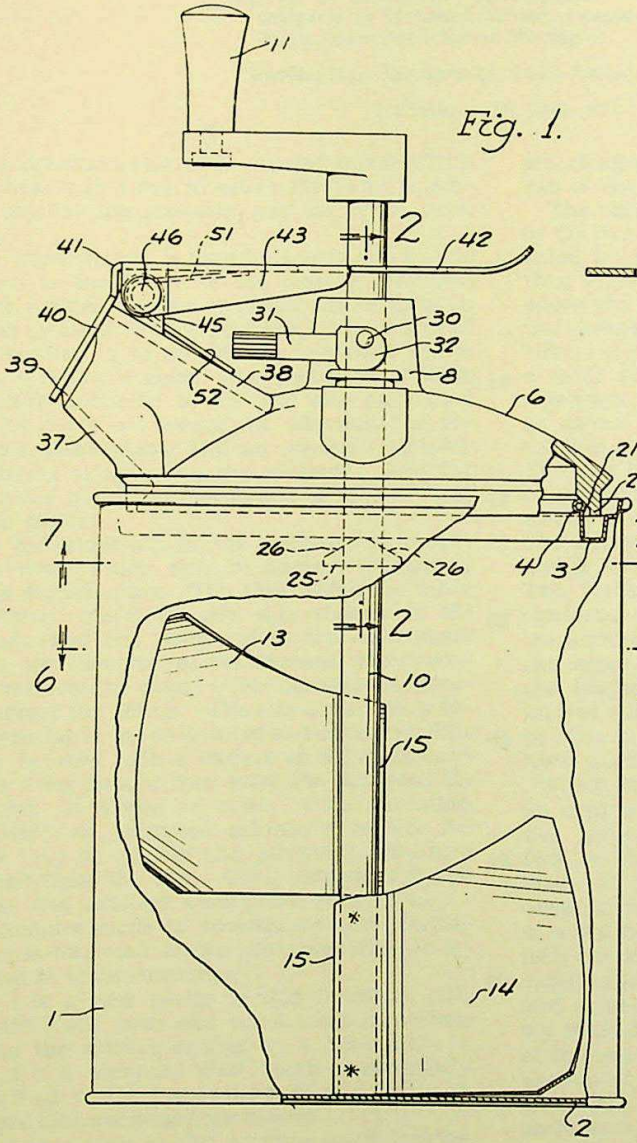


Fig. 1.

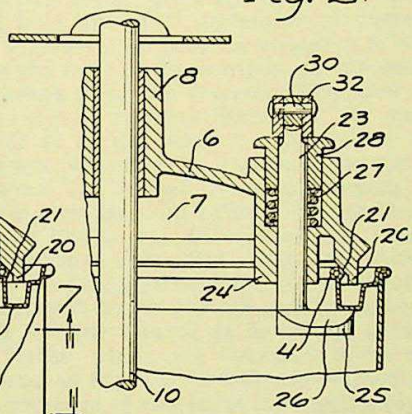


Fig. 2.

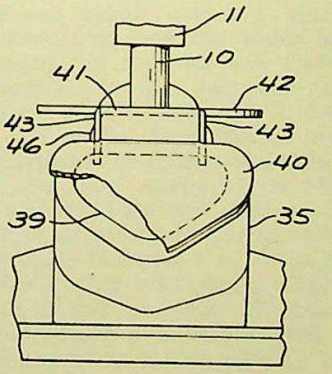


Fig. 3.

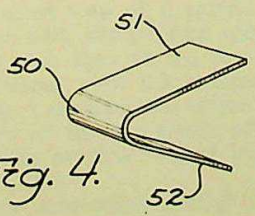


Fig. 4.

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CLOSURE FOR PAINT CANS

Filed Jan. 19, 1949 2 SHEETS—SHEET 2

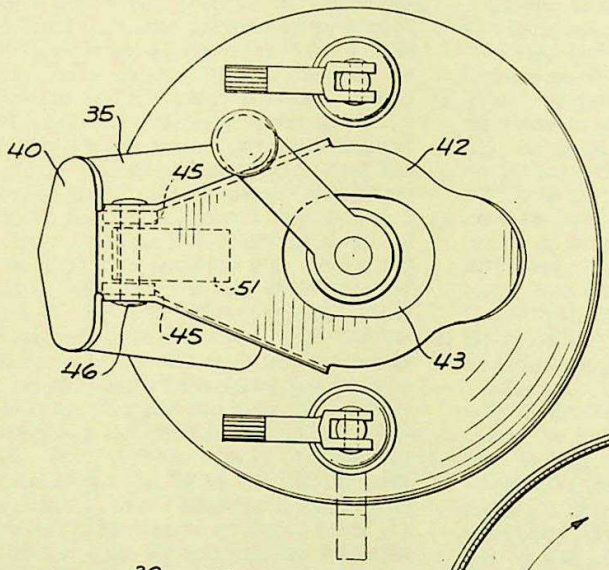
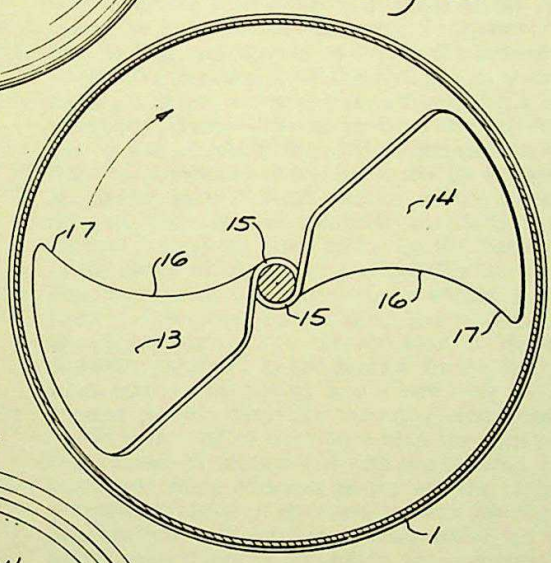



Fig. 5.

Fig. 6.



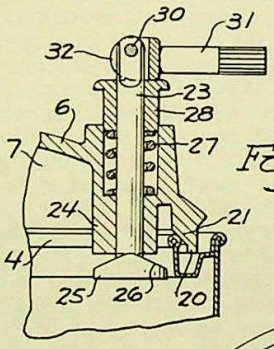




Fig. 8.

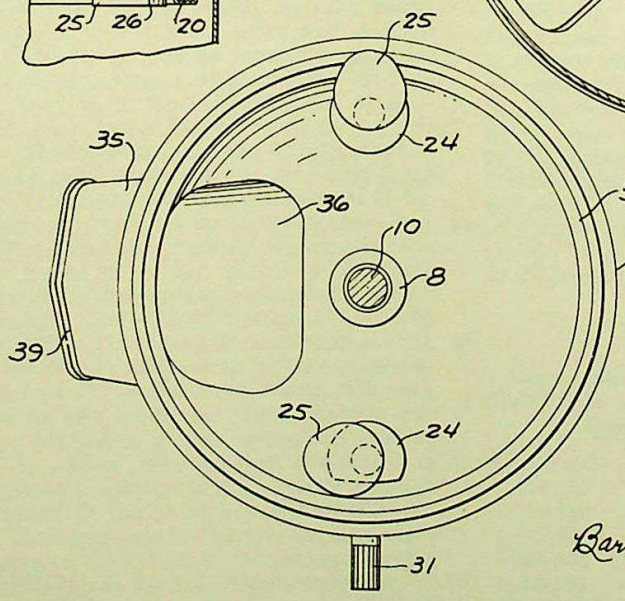



Fig. 7.

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# UNITED STATES PATENT OFFICE

2,585,334

## CLOSURE FOR PAINT CANS

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Application January 19, 1949, Serial No. 71,676

1 Claim. (Cl. 220—55)

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This invention relates to a paint mixer which is applicable to a can in which the paint is supplied so that the contents may be mixed prior to use.

The word "paint" is used having in mind some latitude, as the device of the present invention may be applied to cans or containers of lacquer, varnish or other similar products. The object of the invention is to provide an improved device which includes a cover which may be quickly detachably mounted to the can and associated with the cover are means for effecting the detachable attachment, and an operable agitator for stirring or agitating the contents. Also the cover has a pouring spout with a normally closed valving device.

One particular aim of the invention is to provide a cover which may be applied to cans of various manufacture. The cans which are made by different manufacturers vary slightly in dimensions and one place where the dimensions vary is the diameter of the opening which normally receives the cover. This diameter is measured across the chimb. The closure of the present invention is so constructed and arranged that it may be used with a variety of different containers even though they have the different dimensions. It is also an object of the invention to provide an improved means by which the closure may be quickly and easily mounted and detached from the can. Other objects will appear as the detailed description progresses.

A structure made in accordance with the invention is disclosed in the accompanying drawings and in these drawings:

Fig. 1 is a view partly in side elevation with some parts cut away and some parts in section showing the closure applied to a container.

Fig. 2 is a sectional view taken substantially on line 2—2 of Fig. 1 showing part of the closure structure and the attaching means.

Fig. 3 is a view of the pouring spout looking from the left of Fig. 1.

Fig. 4 is a detailed view of a spring member used in connection with the pouring spout.

Fig. 5 is a top plan view of the device.

Fig. 6 is a sectional view taken substantially on line 6—6 of Fig. 1 showing the agitator blades.

Fig. 7 is a view of the underside of the cap looking substantially on line 7—7 of Fig. 1 with the container removed.

Fig. 8 is a view somewhat similar to Fig. 2 showing an attaching device in released condition.

The container, which is commercially termed a can, with which the present invention may be used, is illustrated at 1 in Fig. 1 having a bottom end 2. The opposite end is formed with an inwardly extending depressed flange portion 3 formed with a bead 4 which may be termed a

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chimb and which defines an opening. The usual cap of the can fits into this opening.

The closure member is advantageously a body of die cast metal, the body being generally indicated at 6 and it is preferably of dome-shape thus to provide an internal chamber 7, which is above the level of the contents of the can when the closure is applied thereto. The cover is provided with a suitable bearing 8 for receiving a shaft 10 of the agitator. This shaft is provided with an operating handle on its upper end, as shown at 11, and the lower portion of the shaft is provided with agitator blades 13 and 14. The two blades may be of the same formation, one positioned above the other, and each blade which is advantageously formed of sheet metal has a curved center part 15 embracing the shaft and is secured thereto as by means of welding. The blades, which are intended to be rotated clockwise as Fig. 6 is viewed, are formed so that the lower edge 16 thereof is the leading edge with the upper edges 17 trailing with the result that the blades are slightly inclined and they are formed with a lower edge construction, as shown in Fig. 6, so that the outer portion 17 of the lower edges lead the other portions of the blades.

When rotated, as described, the blade 14 scoops up contents of the can by its lower edge and the contents are urged upwardly along the face of the blade and then the lower edge of blade 13 engaged the contents and moves the contents upwardly. In this way, the material is raised from the bottom of the can to the point near the top. Of course, the substance thus elevated must be replaced by substance which lowers and some of the paint which passes over the top edge of the blade 14 moves toward the bottom of the can and other substance which moves over the top of the blade 13 moves toward the bottom of the can. The leading edge portion 17 provides surfaces which incline inwardly and thus offset centrifugal force which may be imparted to the contents in the rotation of the agitator. Needless to say, the blades are such that they may be passed through the opening in the top of the can even if it is necessary to slightly cock the device as the blades are inserted.

The closure has a circumferential flange 20 with an internal inclined face 21 and in applying the closure to the can the flange 20 is disposed outside the chimb 4 and somewhat into the depressed portion 3 and the inclined face 21 engages the bead or chimb, as shown in Figs. 1 and 2. One variation in can sizes is the variation in the diameter of the opening and, therefore, variation in the position of the bead 4. The inclined face 21 is made of such extent, measured radially, that it will fit upon cans of various sizes, as will be appreciated by reference to Figs. 1 and 2. This

variation in can sizes is only a few thousandths of an inch.

The closure is provided with attaching devices, preferably two in number, and as shown in Fig. 2, each attaching device comprises a spindle 23 rotatably mounted in a journal formation 24 in the cover and having at its inner end a lug or foot 25 provided with opposite inclined faces 26. Situated in the formation 24 is a coiled spring 27 which acts upon a bushing 28 which is slidably mounted in the journal formation. Pivotally mounted on the top of the spindle, as by means of a pin 30, is a lever 31 provided with a cam formation 32. As shown in Figs. 1, 2 and 5, the attaching devices are in locked position. When thus applied, the levers are positioned as shown so that the lugs 25 are pulled upwardly against the underside of the depressed flange 3 of the can. To release the attaching device, the levers 31 are swung on their pivots about 180° as Fig. 1 is viewed, thus releasing the compression of springs 27 so that the spindles may be turned on their axes to disengage the lugs 25 from under the portion 3 of the can. However, the spring tension is always maintained even when the attaching devices are fully released, the springs 27 expanding and thus securely holding the spindles and levers 31 snugly in position (Fig. 8). To secure the attaching device, the operation is reverse, namely, that of first turning the spindles so that the inclined faces 26 of the lugs 25 slide under the portion 3, thus compressing springs 27 and then the levers 31 may be swung to bring the high point of the cans 32 against the bushings 28 to thus tighten the engagement of the lugs with the can. In Fig. 7, one lug 25 is shown in engaged position under the portion 3 while the other lug is shown in a position of disengagement.

The cover is provided with a pouring spout 35, the inner opening of which at 36 communicates into the domed chamber 7. The spout may be considered as having a lower wall 37 and an upper wall 38 and the outlet end is normally closed by a valve member having a body 40 which fits over the open outer end of the spout. The spout has a sharp edge 39 which the valve member 40 engages to cut the stream and prevent dripping. This body may be formed from sheet metal, the same having a bend at 41 which connects the body to an operating handle 42 provided with an opening 43 therethrough for the shaft 10. The handle has downwardly extending wings 43 on opposite sides thereof and these wings are pivotally mounted to spaced lugs 45 integrally formed with the spout by means of a pivot pin 46. The valve member is normally held closed by means of a leaf spring of the form shown in Fig. 4. This spring is of suitable spring steel fashioned with a bight portion 50 and two arms 51 and 52. The spring is positioned so that its bight portion extends around the pin 46 between the lugs 45, as shown in Fig. 5, with one arm engaging the spout and the other one engaging the underside of the operating arm or lever 42. It will be observed that the spring is of considerable length from the point of contact with the spout to the point of contact with the operating lever and thus in the opening and closing of the valve the spring is not stressed locally and accordingly has an exceedingly long life.

In the use of the device the top of the can or container is removed and the closure 6 applied to the can as above described, and securely locked in position by the attaching devices. The handle is then manipulated to rotate the blades in the direction indicated in Fig. 6 until the contents of the can are thoroughly mixed. Thereupon such quantities of the contents as are desired may be poured from the pouring spout, this being done by depressing the lever 42 to swing the valve member 40 off of the open end of the spout. The contents of the can thus are maintained in closed condition so that there is no free access of air thereto thus minimizing oxidation and other detrimental effects. In a paint shop which, for example, may be in the business of painting, touching up, repainting, and match painting automobile bodies, fenders and parts thereof, may have a number of such cans on their shelves or otherwise stored so that a selected color may be obtained at any time. In other words, the device may be mounted on a can and allowed to remain there until the can is empty. It will be noted also that the spout is so arranged that the paint may be poured therefrom without the use of a separate vent. As the can is tipped the paint flows over the lower wall 37 and air may freely enter into the chamber 7 by passing along the upper wall 38 and above the outflowing paint. By providing no vent the contents of the can may be maintained in a substantially sealed condition.



I claim:

In a device applicable to a sheet metal container for paint or the like wherein the container has, at one end thereof, an inwardly extending flange like portion, with the flange like portion having a chimb which defines an opening, a closure body having a circumferential seat for seating on the chimb, a plurality of journal formations on the closure body for receiving a fastening device, each fastening device having a pintle member slidably and rotatably positioned in a journal formation, a projection on the inner end of the pintle which is engageable under the flange like portion of the container, a spring in the journal formation surrounding the pintle, said spring seating on the closure body, a bushing slidably positioned in the journal formation and acted upon by the spring, and a cam lever having an end portion pivotally mounted eccentrically to the outer end of the pintle with the cam portion thereof in engagement with the bushing, said cam lever being operable to tighten the projection on the pintle in engagement with the flange like portion with resultant compression of the spring, and operable to relieve the compression of the spring so that the pintle may be turned to disengage the projection from under the flange like portion, said spring extending to maintain the pintle under axial load when the projection thereof is released from the flange like portion of the container.

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## REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS


| Number | Name | Date |
|---|---|---|
| 513,256 | White | Jan. 23, 1894 |
| 1,200,311 | Cash et al. | Oct. 3, 1916 |
| 1,305,702 | Ehlert | June 3, 1919 |
| 1,414,569 | Hubble | May 2, 1922 |
| 1,468,208 | Mueller | Sept. 18, 1923 |
| 1,743,293 | Toft | Jan. 14, 1930 |
| 1,867,408 | Huenefeld | July 12, 1932 |
| 2,031,885 | Gredell | Feb. 25, 1936 |
| 2,263,843 | Cross | Nov. 25, 1941 |